

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
27 January 2005 (27.01.2005)

PCT

(10) International Publication Number
WO 2005/009072 A3

(51) International Patent Classification⁷: **H04R 1/04**,
H03M 3/04, H04R 3/00

(21) International Application Number:
PCT/DK2004/000680

(22) International Filing Date: 8 October 2004 (08.10.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/525,039 24 November 2003 (24.11.2003) US

(71) Applicant (for all designated States except US): **SONION**
A/S [DK/DK]; Byleddet 12-14, DK-4000 Roskilde (DK).

(72) Inventor; and

(75) Inventor/Applicant (for US only): **POULSEN, Jens,**
Kristian [DK/DK]; Plantagevej 20, DK-2640 Hedehusene
(DK).

(74) Agent: **PLOUGMANN & VINGTOFT A/S**; Sundkrogs-
gade 9, Post Office Box 831, DK-2100 Copenhagen Ø
(DK).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

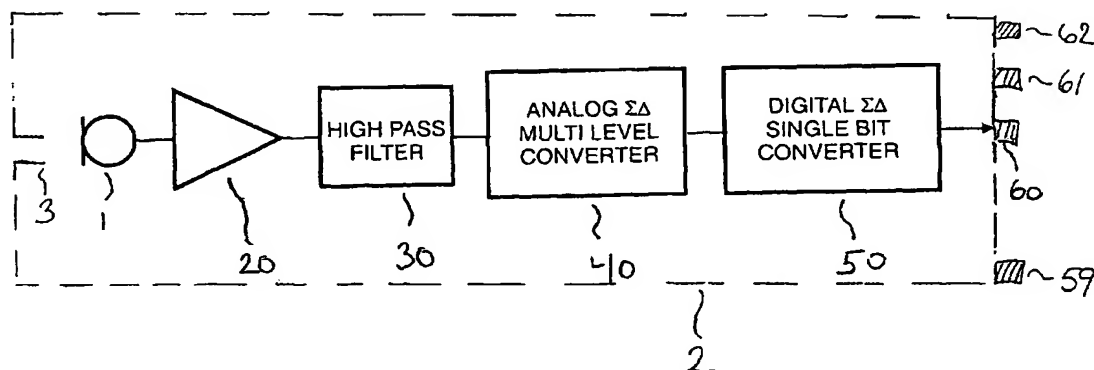
Published:

- with international search report
- before the expiration of the time limit for amending the
claims and to be republished in the event of receipt of
amendments
- upon request of the applicant, before the expiration of the
time limit referred to in Article 21(2)(a)

(88) Date of publication of the international search report:
24 March 2005

For two-letter codes and other abbreviations, refer to the "Guid-
ance Notes on Codes and Abbreviations" appearing at the begin-
ning of each regular issue of the PCT Gazette.

(54) Title: MICROPHONE COMPRISING INTEGRAL MULTI-LEVEL QUANTIZER AND SINGLE-BIT CONVERSION MEANS



(57) Abstract: The invention relates to a digital microphone comprising an integral analog-to-digital converter based on a multi-level quantizer in cascade with a digital signal converter which is adapted to provide a single-bit output signal. Preferably, the analog-to-digital converter is a multi-bit delta-sigma A/D converter. Digital microphones in accordance with the invention are particularly well adapted for use in mobile terminals and compact portable communication equipment such as mobile or cellular phones, headsets, hearing prostheses etc.

WO 2005/009072 A3